



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

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Ref: 8ENF-W-SD

November 18, 2022

Eric Kittinger, Senior Regulatory Analyst
Merit Energy Company (Permittee and Operator of Record)
13727 Noel Road, Suite 1200
Dallas, Texas 75240

Re: Underground Injection Control (UIC); Field-Wide Tubing-Casing Annulus Pressures
and Request for Information Steamboat Butte Oilfield, Fremont County, Wyoming

Dear Mr. Kittinger:

This letter expresses the United States Environmental Protection Agency's (EPA) concern about annulus pressures at the Class II enhanced oil recovery injection wells located in the Steamboat Butte oilfield, and requests information from Merit Energy Company (Merit). There are 28 injection wells authorized under the federal UIC program, pursuant to part C of the Safe Drinking Water Act (SDWA) currently operated by Merit. These wells are authorized via 23 individual injection well permits and five authorizations by rule. The enclosures with this letter provide relevant information about the Steamboat Butte injection wells.

Tubing/Casing Annulus Pressures Observed

During routine inspections of these injection wells by the EPA representative, Nathan Wiser, on August 9, 2022, most of these wells were found to have positive pressure within the tubing/casing annulus (TCA). Wellhead TCA pressures observed on August 9, 2022, ranged from zero psi to 243 psi, with 20 of the wells having TCA pressure above zero psi and 13 of the wells having TCA pressure above 100 psi. Upon concluding the inspections on August 9, 2022, Mr. Wiser, expressed concern that 71% of the wells showed positive TCA pressure and he recommended that Merit should attempt to determine the cause of the pressure, such as by venting the TCA and relieving the pressure, with regular follow up wellhead observations to see whether TCA pressure returns. These suggestions were made to help Merit determine the cause of the TCA pressures.

Since August 9, 2022, Merit has shared additional recorded TCA pressures from 26 of these 28 injection wells as well as brief descriptions of four TCA venting episodes. Venting events were reported on four dates: August 10, August 12, August 16, and August 23. Tables 1 and 2 enclosed with this letter show results of these TCA pressure recordings and venting events. The first two venting events reported a combination of liquid and gas flows from the TCA with seven wells reported to have some liquid flows from the TCA. The last two venting events reported only gas flows from the TCA. Eleven subsequent weekly reports of TCA pressures since the four

venting events have shown TCA pressures that varied from zero to 101 psi. Per the most recent wellhead TCA observations, submitted by Merit on November 15, 2022, 13 wells were reported to have positive TCA pressure, ranging from 4 to 61 psi. These weekly TCA pressures do not demonstrate an obvious trend since EPA's inspection.

Discussions with Merit Energy

During virtual meetings with Merit on August 16, 2022, and September 28, 2022, Mr. Wiser asked whether Merit could explain the cause of the TCA pressures observed. One idea communicated by Mr. Wiser is that Merit sample the liquid or gas that flows from the TCA's during venting to help fingerprint the source of these fluids entering the TCA's. On September 28, Merit verbally communicated that the TCA pressures could be caused by injectate warming the TCA and inducing pressure in the TCA. We have no knowledge that any organized investigation is underway, beyond weekly TCA pressure observations and recordings.

UIC Permit Requirements

As stated earlier, 23 of the Steamboat Butte injection wells are authorized by permit and 5 are authorized by rule. See 40 C.F.R. Sections 144.21, 144.28 and 144.31. The permits that govern these injection wells contain certain TCA requirements. Eleven of the permits instruct the permittee to control TCA pressure and all 23 permits require monthly wellhead TCA pressure recording and annual reporting. Records of monitored and recorded data are required to be maintained by Merit for at least three years. See 40 C.F.R. 144.51(j). The enclosed Table 3 lists these requirements.

Nine of these permits contain language that requires the TCA to be maintained at zero psi and further requires that if zero psi cannot be maintained, the permittee shall follow an orderly procedure consisting of TCA pressure relief with follow up observations to determine whether the TCA pressure indicates a loss of mechanical integrity. During the August 9 inspection, TCA pressures for eight of these nine permitted well conditions observed ranges from 47 to 243 psi.

Two other permits contain language that requires the TCA to be maintained between zero psi and the lesser of either 100 psi or 10% of the injection tubing pressure. During the August 9, 2022, inspections the TCA pressures for these two wells were measured at zero psi, one of which may have no tubing or packer in it.

All 23 permits require that, at least monthly, the TCA pressure shall be observed and recorded, and then annually reported. Merit's most recent annual monitoring reports (AMRs) reported that Steamboat Butte injection wells had zero psi observed for each of the 12 months in 2021. Merit's practice of reporting zero TCA pressure at the Steamboat Butte injection wells dates back at least to 2018. The self-reported pressure data is inconsistent with EPA's field observations.

Information Request

Pursuant to the SDWA Section 1445(a) and Title 40 of the Code of Federal Regulations (40 C.F.R.) Sections 144.27 and 144.51(h), Merit must provide the information listed below. This information must be provided within **30 calendar days from receipt of this letter**, unless Merit seeks, and the EPA grants, an extension.

1. For the 28 wells shown in Table 1, all wellhead TCA pressures observed and recorded during calendar years 2020, 2021, and 2022, including the date of each recorded value;
2. For the 28 wells shown in Table 1, all wellhead tubing injection pressures observed and recorded during calendar years 2020, 2021, and 2022, including the date of each recorded value; and
3. Copies of AMRs submitted for all 28 injection wells shown in Table 1 for calendar years 2020 and 2021.

Finally, please provide the EPA with a description of the work Merit has taken or is undertaking to determine the cause of the TCA pressures at the Steamboat Butte field, including any preliminary determination Merit may have made for the cause of this pressure. Include any descriptions of planned or actual gas or liquid samples collected from these well TCA's.

Any failure to comply with a UIC permit or the UIC regulations, including an information request, is subject to enforcement by the EPA, as provided in section 1423 of the Safe Drinking Water Act, 42 U.S.C. § 300h-2. If formal enforcement action were to be necessary, the Safe Drinking Water Act provides for civil penalties of up to **\$62,689** (as adjusted for inflation) per day of violation.

If you have any questions about this letter, please contact Nathan Wiser of my staff. He can be reached by phone at 303-312-6211, or by email at wiser.nathan@epa.gov. Any mail sent in this matter should be addressed to Mr. Wiser's attention at Mail Code 8ENF-W-SD.

Sincerely,
**COLLEEN
RATHBONE**

Digitally signed by COLLEEN
RATHBONE
Date: 2022.11.18 11:19:08 -07'00'

Colleen Rathbone, Supervisor
Water Enforcement Branch
Enforcement and Compliance Assurance Division

Enclosures:

Table 1 Pressures Recorded
Table 2 Venting Episodes
Table 3 TCA Requirements

cc: Jordan Dresser, Chairman
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